lows a larger proportion of the circulating L-dopa to be utilized by the brain in the formation of dopamine. This more efficient utilization of L-dopa permits the use of much smaller doses, which decreases the gastrointestinal distress but does not appreciably diminish the other side effects. Although the dopa-decarboxylases are available at present only for experimental use, the apparent absence of severe toxicity makes it likely that they will be released soon for general use.

Long term maintenance on L-dopa although not usually resulting in decreased control of the symptoms of parkinsonism, may cause the appearance of additional evidences of intolerance. These differ slightly from the side effects occurring early and include abnormal involuntary movements, impairment of cerebration and episodic loss of muscle tone so great and sudden that the patient may fall. Management of these complications requires reduction of the dosage, although frequently the symptoms will reappear after a time at the lower dosage. Discontinuing the drug may be necessary. Although difficult to confirm statistically, it appears that in some cases L-dopa slows or prevents the usual progression of Parkinson's disease.

In summary, L-dopa is very effective in alleviating most of the symptoms of parkinsonism, but its use requires careful adjustment of dosage and close observation of the patient. The use of L-dopa in the treatment of other movement disorders has been, in general, disappointing.

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REFERENCES

Langral H, Joseph C: Evaluation of safety and efficacy of levodopa in Parkinson's disease and syndrome. Neurology 22 (Part 2):3-16, May 1972

Cotzias G, Papavasiliou P, Duby S, et al: Some newer metabolic concepts in the treatment of parkinsonism. Neurology 22 (Part 2):82-85, May 1972

Alpha Rhythms and What They Mean

THE ALPHA RHYTHM is to the brain what the electrocardiogram is to the heart. However, while we know the significance of the latter rather precisely, that of the alpha rhythm remains an enigma. Nevertheless, alpha rhythms (there is one for each hemisphere) are very useful in electroencephalogram diagnosis since they reflect maturational processes and tend to be suppressed by mass lesions such as tumors.

The alpha rhythm closely reflects the state of consciousness and there has recently been great interest in rendering it audible by special electronic monitors. In listening to this alpha rhythm, a subject completes a feedback loop (bio-feedback) and can learn to enhance or suppress this activity. Some have claimed that the process of feedback enhancement represents a special state of consciousness related to meditative experience. There are some indications that these induced states may have therapeutic value in reducing anxiety and tension.

Computer analysis of the alpha rhythm has recently revealed the presence of many unsuspected components in what was formerly regarded as a trivial ten cycle sine wave. These newly demonstrated alpha components may contain information which will provide further insight into brain function.

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REFERENCE

Tart CT: Altered States of Consciousness: A Book of Readings. New York. Wiley & Sons, 1969

Myasthenia Gravis

DESPITE THE FACT that the conventional anticholinesterase medications such as neostigmine methylsulfate (Prostigmin®), pyridostigmine bromide (Mestinon®), and ambenonium chloride (Mytelase®) continue to be widely used in the management of myasthenia gravis, other modes of therapy must be considered.

It has been shown recently that patients who are relatively refractory to anti-cholinesterase drugs or who cannot tolerate them may respond dramatically to high doses of prednisone (100 mg) administered on alternate days. While the patient is receiving steroids, all forms of anticholinesterase medication must be withheld and the patient must be carefully monitored for possible complications of the disease and steroid

therapy. The latter are generally minimized by the alternate day regimen. Since some patients may actually worsen transiently at the initiation of steroid therapy, vital functions must be carefully monitored and the initial treatment must be carried out in the hospital.

Until recently, thymectomy for myasthenia gravis was advocated for patients who had either evidence of thymoma or for female patients under age 30 who have had the disease for less than five years. Long-term follow-up studies published recently suggest that patients of all age groups and both sexes benefit from thymectomy irrespective of the duration of the illness. Long-term follow-up studies indicate that progressive improvement following thymectomy occurs in up to 75 percent of cases. There appears to be good correlation between improvement and certain quantitative histologic abnormalities observed in the thymus. Patients with the least amount of germinal proliferation of the thymus tend to improve most rapidly.

Once diagnosis is properly established, the patient should be given the benefit of conventional therapy. Should this fail, alternate day steroid therapy or thymectomy should be considered.

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REFERENCES

Warmolts JR, Engel WK: Benefit from alternate-day prednisone in myasthenia gravis. N Engl J Med 286:17-20, Jan 6, 1972

Paptestes AE: Studies in myasthenia gravis: Effects of thymectomy. Am J Med 50:465-474, Apr 1971

Treatment of Multiple Sclerosis

THE CAUSE OF MULTIPLE SCLEROSIS (MS) remains obscure and there is no specific therapy. While steroids have been advocated, there is little substantive research evidence to endorse uncontrolled use of these agents.

A recently completed national cooperative study on the use of ACTH in MS during acute exacerbations revealed a slightly beneficial effect: During four weeks of observation, which included only two weeks of ACTH, a slightly greater number of patients improved slightly faster than those in the placebo group. Similar reports of beneficial short-term treatment for acute symptoms, especially for acute optic neuritis, have been published. There is no convincing evidence for the value of long-term maintenance with steroids.

As a practical guide, ACTH or oral steroids can be given in a tapered dose over the course of four to six weeks. Since the improvement following steroids usually occurs within the first 72 hours, there appears little to be gained by continuing treatment longer.

As there is some evidence that an immune response is a factor, immunosuppressive therapy has recently been in vogue as a treatment for this disease but the results have been inconclusive and in general disappointing.

Patients with this disease should be kept under observation, however, for there are beneficial measures that can be taken—physical therapy for gait training, stretching and strengthening exercises for spastic weakness and the use of ice packs for spasticity. Patients should be encouraged and pushed to be as physically active as possible.

As adjuncts, anticholinergic agents such as ProBanthine® (propantheline bromide, U.S.P.) can be helpful in controlling bladder and bowel spasms and in relieving the embarrassment of urinary urgency and incontinence. In addition, patients should be on a well-balanced dietary program. Vitamins can be added as a supplement.

Prompt attention to infections, be they of the skin, urinary or respiratory systems, and in general the treatment of any physical ailments are especially important to patients already beset by an underlying neurological disease.

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REFERENCES

Sibley WA: Current methods of therapy in multiple sclerosis. Mod Treat 7:918-929, Sep 1970

Rose AS, Kuzma JW, Kurtzke JF, et al: Cooperative study in the evaluation of therapy in multiple sclerosis; ACTH vs. placebo in acute exacerbations. Neurology 18: Suppl 1-10, Jun 1968

Rawson MD, Liversedge LA, Goldfarb G: Treatment of acute retrobulbar neuritis with corticotrophin. Lancet 2:1044-1046, Nov 12, 1966

Millar JHD, Vas CJ, Noronha MJ, et al: Long-term treatment of multiple sclerosis with corticotrophin. Lancet 2:429-431, Aug 26, 1967